



Patent
Attorney's Docket No. P2380-505

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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In Patent Application of)

David G. OPSTAD et al.)

Application No.: 09/306,888)

Filed: May 7, 1999)

For: AUTOMATIC SYNTHESIS OF)
FONT TABLES FOR CHARACTER)
LAYOUT)

Group Art Unit: 2672

Examiner: T. Havan

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RESPONSE

Assistant Commissioner for Patents
Washington, D.C. 20231

Sir:

In response to the Office Action dated February 13, 2001, Applicants respectfully request reconsideration and withdrawal of the rejection of the claims.

All pending claims were rejected under 35 U.S.C. § 103 as being unpatentable over the *Brock et al.* patent. In essence, the statement of rejection alleges that the *Brock* patent explicitly discloses all of the features recited in the claims, with the exception of laying out the glyphs in a line, in accordance with data in a table. In connection with this item, the Office Action states that the Font Directory table disclosed in the *Brock* patent provides corresponding functionality, and therefore it would obvious to lay out glyphs in a line, in accordance with the data in that table.

It is respectfully submitted, however, that the differences between the present invention and the *Brock* patent are more fundamental than the issue of whether glyphs are laid out in a line. Rather, the *Brock* patent is directed to an entirely different objective from the present invention, as a result of which it does not suggest any solution to the problem addressed by the present invention.

More particularly, the *Brock* patent is concerned with the amount of data that needs to be stored for fonts. As described in the paragraph bridging columns 1 and 2, an exemplary font might require about 45 KB of memory, so that a document containing 4 fonts will require about 180 KB just to represent the font information. To alleviate these memory requirements, the *Brock* patent teaches an approach in which the data for each font is not stored in its entirety. Rather, one font, a base or generic font, contains all of the data necessary to generate that font. The other fonts are stored in terms of their differences from the base font. For instance, in the example illustrated in Figures 4-8, the base font represented in Figure 4 is a san-serif font, and another font represented in Figure 5 contains serifs. The tables of Figures 7 and 8 provide the information necessary to generate the serif font of Figure 5 from the san-serif base font of Figure 4. By means of this approach, a library of 100 fonts, which might typically require about 4.5 MB of memory, can be reduced to about 500 KB (column 2, line 63 ff.).

In contrast, the present invention is concerned with the fact that some of the tables that may be needed to properly display a font in accordance with certain line layout technologies may not be present, particularly in the case of older fonts. For example, as described on pages 9 and 10 of the application, one of the procedures that is carried out by

a line layout processor comprises metamorphosis, in which an initial set of glyphs may be transformed into a different set of glyphs. In carrying out this procedure, the line layout processor refers to one or more tables in the font that identify the glyph changes that should occur. It may be the case, however, that some fonts do not contain these tables. The present invention addresses this situation, by providing a mechanism for automatically synthesizing the tables from the information contained in the font itself. Referring to an exemplary embodiment depicted in Figure 7, the synthesizer employs data contained in some of the tables of a font, such as a glyph mapping table 47, to construct a font map 81. Then, using information in a mapping table 84, the synthesizer constructs a metamorphosis table 86, which can then be used by the line layout processor to properly display the font.

It is respectfully submitted that the *Brock* patent does not address this problem, and more importantly does not disclose the features of the present invention for automatically synthesizing one or more font tables. For instance, beginning at column 10, line 24, the *Brock* patent discloses that a base font is implemented as a set of tables. It does not disclose, however, that if one or more required tables is missing, it can be automatically synthesized from data in the other tables. Rather, the *Brock* patent assumes that all of the necessary tables for generating a font will be present. Thus, with reference to claim 1, the patent does not disclose the step of "determining *whether* the font contains a predetermined data table ..." Similarly, it does not disclose the following step of "automatically synthesizing said data table ... *if* the font is determined not to contain said data." As set forth in this claim, the present invention operates to *detect* whether the tables necessary to lay out glyphs are present in a font, and then automatically *create*, or synthesize, a table if

it is missing. The *Brock* patent does not disclose these operations, nor anything analogous thereto. In particular, there is no disclosure of the capability to determine that a required table is missing, and thereafter synthesize the table in response to such a determination.

These distinguishing characteristics of the present invention are brought out in the other pending claims, as well. For example, claim 11 recites "a font table synthesizer *which is responsive to the absence of a predetermined data table* for creating and storing said table on the basis of data contained in the font file." Claims 19 and 26 recite the steps of "*determining* whether the data table is present in a file containing the font; and synthesizing said table from data contained in said file *if the table is not present in the font file*." Claims 16 and 29 are directed to one manner in which a data table can be automatically synthesized, and recite the steps of "building a font map ..., determining relationships between items of information in the font map, ... and constructing a table which identifies said relationships."

It is respectfully submitted that the *Brock* patent neither discloses, nor otherwise suggests, any of these claimed features. It discloses a technique for reducing the amount of data that must be stored to generate a font, but it does not disclose any mechanism for automatically synthesizing some of that data if it is determined to be missing from the font.


Additional, more specific, features of the invention are recited in the various dependent claims, which are likewise not disclosed by the reference. In view of the foregoing, however, a detailed discussion of those additional distinctions are believed to be unnecessary at this time.

Reconsideration and withdrawal of the rejection, and allowance of all pending claims are respectfully requested.

Respectfully submitted,

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